

Optimizations for Live Event, Real-time, 3D Object Tracking

Abstract

Various combinations of camera assembly 500, tracking frequency 510, energy source 520, marker: emission method 530, marker: physical form 540, marker: reflective shape 550, ID: location 560, ID: encoding method 570, ID: obtained 580 and calibration method 590 forming a preferred embodiment 1004 as well as several alternative embodiments for tracking the movement of multiple objects within a predefined area. Camera assembly 500 optionally comprises fixed volume tracking 502, fixed area tracking 504 and movable volume tracking 506. Tracking frequency 510 optionally comprises visible light 512, infrared light 514 and ultraviolet light 516. Energy source 520 optionally comprises ring lights emitting visible or IR frequencies 522, existing lights emitting visible frequencies 524 and existing lights modified to emit non-visible frequencies 526. Marker: emission method 530 optionally comprises retroreflective markers 532, reflective markers 534 and fluorescent markers 536. Marker: physical form 540 optionally comprises spherical 542 and flat 544. Marker: reflective shape optionally comprises uniform circular 552 and non-uniform multi-shape 554. ID: location 560 optionally comprises full body 562 and top surface of body 564. ID: encoding method 570 optionally comprises unique constellation 572 and encoded markings 574. ID: obtained 580 optionally comprises during game surface tracking 582 and outside of game surface tracking 584. Calibration method 590 optionally comprises pre-tracking 592 and simultaneously with tracking 594.